

## 112.3 - Glasses (powder and solid forms)

PLEASE NOTE: The tables are presented to facilitate comparisons among a family of materials to help customers select the best SRM for their needs. For specific values and uncertainties, the certificate is the only official source.

| SRM         | 81a        | 89                 | 92                          | 93a                     | 165a                  | 620             | 621                 | 1411                    | 1412                 | 1413                      | 1830                  | 1831                  |
|-------------|------------|--------------------|-----------------------------|-------------------------|-----------------------|-----------------|---------------------|-------------------------|----------------------|---------------------------|-----------------------|-----------------------|
| Description | Glass Sand | Glass, Lead Barium | Low-Boron, Soda-Lime Powder | High-Boron Borosilicate | Glass Sand (Low Iron) | Soda Lime, Flat | Soda-Lime Container | Soft Borosilicate Glass | Multicomponent Glass | Glass Sand (High Alumina) | Soda Lime Float Glass | Soda Lime Sheet Glass |
| Unit Size   | (75 g)     | (45 g)             | (45 g)                      | (wafer)                 | (75 g)                | (set (3))       | (set (3))           | (set (10))              | (set (8))            | (75 g)                    | (3 platelets)         | (3 platelets)         |

(Concentrations are in mass fractions, in %, unless noted by an asterisk for mg/kg)

|                                |       |       |        |       |       |       |       |       |         |       |       |       |
|--------------------------------|-------|-------|--------|-------|-------|-------|-------|-------|---------|-------|-------|-------|
| Al <sub>2</sub> O <sub>3</sub> | 0.66  | 0.18  |        | 2.28  | 0.059 | 1.80  | 2.76  | 5.68  | 7.52    | 9.90  | 0.12  | 1.21  |
| As <sub>2</sub> O <sub>3</sub> |       | 0.03  |        |       |       | 0.056 | 0.030 |       |         |       |       |       |
| As <sub>2</sub> O <sub>5</sub> |       | 0.36  |        |       |       |       |       |       |         |       |       |       |
| B <sub>2</sub> O <sub>3</sub>  |       |       | 0.70   | 12.56 |       |       |       | 10.94 | 4.53    |       |       |       |
| Cr <sub>2</sub> O <sub>3</sub> | 46*   |       |        |       | (1*)  |       |       |       |         |       |       |       |
| Fe <sub>2</sub> O <sub>3</sub> | 0.082 | 0.049 |        | 0.028 | 0.012 | 0.043 | 0.040 | 0.050 | (0.031) | 0.24  | 0.121 | 0.087 |
| K <sub>2</sub> O               |       | 8.40  | (0.6)  | 0.014 |       | 0.41  | 2.01  | 2.97  | 4.14    | 3.94  | 0.04  | 0.33  |
| Li <sub>2</sub> O              |       |       |        |       |       |       |       |       | (4.50)  |       |       |       |
| Mn <sub>2</sub> O <sub>3</sub> |       |       |        |       |       |       |       |       |         |       |       |       |
| Na <sub>2</sub> O              |       | 5.70  | (13.1) | 3.98  |       | 14.39 | 12.74 | 10.14 | 4.69    | 1.75  | 13.75 | 13.32 |
| P <sub>2</sub> O <sub>5</sub>  |       | 0.23  |        |       |       |       |       |       |         |       |       |       |
| SiO <sub>2</sub>               |       | 65.35 | (75.0) | 80.8  |       | 72.08 | 71.13 | 58.04 | 42.38   | 82.77 | 73.07 | 73.08 |
| SO <sub>3</sub>                |       | 0.03  |        |       |       | 0.28  | 0.13  |       |         |       | 0.26  | 0.25  |
| TiO <sub>2</sub>               | 0.12  | 0.01  |        | 0.014 | 0.011 | 0.018 | 0.014 | 0.02  |         |       | 0.011 | 0.019 |
| ZrO <sub>2</sub>               | 0.034 | 0.005 |        | 0.042 | 0.006 |       | 0.007 |       |         |       |       |       |

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|                     |      |       |       |  |  |      |       |      |      |      |      |      |
|---------------------|------|-------|-------|--|--|------|-------|------|------|------|------|------|
| Barium oxide (BaO)  | 1.40 |       |       |  |  |      | 0.12  | 5.00 | 4.67 | 0.12 |      |      |
| Cadmium oxide (CdO) |      |       |       |  |  |      |       |      | 4.38 |      |      |      |
| Calcium oxide (CaO) | 0.21 | (8.3) | 0.01  |  |  | 7.11 | 10.71 | 2.18 | 4.53 | 0.74 | 8.56 | 8.20 |
| Chlorine (Cl)       | 0.05 |       | 0.060 |  |  |      |       |      |      |      |      |      |
| Chromium (Cr)       |      |       |       |  |  |      |       |      |      |      |      |      |
| Component           |      |       |       |  |  |      |       |      |      |      |      |      |
| Fluorine (F)        |      |       |       |  |  |      |       |      |      |      |      |      |

Certified values are normal font.

Reference values are italicized.

Values in parentheses are for information only.

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1834 2696

**Fused  
Ore  
(Glass)  
(disk)** **Silica  
Fume  
(70 g)**

Al  
20.71

0.2080

B (1.1)

2.11

0.055

K 0.42

0.652

Li (4.6)

0.032

Na  
(0.14)

0.129

P 0.152

0.0863

Si  
20.19

95.61

Ti 1.11

Zr  
(0.047)

Ba  
0.062

Ca  
0.095

0.426

(0.02)

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|                              |       |        |       |      |      |      |        |       |      |       |
|------------------------------|-------|--------|-------|------|------|------|--------|-------|------|-------|
| <b>Iron (Fe)</b>             |       |        |       |      |      |      |        |       |      |       |
| <b>Iron oxide (FeO)</b>      |       |        | 0.016 |      |      |      |        | 0.032 |      | 0.025 |
| <b>Lead oxide (PbO)</b>      | 17.50 |        |       |      |      |      | 4.40   |       |      |       |
| <b>Loss on Ignition</b>      | 0.32  | (0.42) |       |      |      |      |        |       |      |       |
| <b>Magnesium oxide (MgO)</b> | 0.03  | (0.1)  | 0.005 | 3.69 | 0.27 | 0.33 | (4.69) | 0.06  | 3.90 | 3.51  |
| <b>Manganese oxide (MnO)</b> | 0.088 |        |       |      |      |      |        |       |      |       |
| <b>Strontium oxide (SrO)</b> |       |        |       |      |      | 0.09 | 4.55   |       |      |       |
| <b>Zinc oxide (ZnO)</b>      |       | (0.2)  |       |      |      | 3.85 | 4.48   |       |      |       |

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0.32

(2.11)

Mg 0.235  
0.088

Sr  
0.153

0.051

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